

Idaho 4th Grade Direct Mathematics Assessment

2004 4th GRADE MAIN RANGEFINDER 4

Advanced Application of Basic Skills

Your teacher will read the entire test to you before you begin.
Do not use a calculator on this assessment.

1. Jason has a notebook to record the number of birds he studies each year. Last year he recorded 987 bluebirds, 834 robins, 566 sparrows, and 1,028 crows.



- a. How many birds did he record altogether last year? Show or explain how you found your answer.

$$\begin{array}{r} 987 \text{ bluebirds} \\ 834 \text{ robins} \\ + 566 \text{ sparrows} \\ \hline 3,415 \text{ birds} \end{array}$$

Jason recorded 3,415 birds last year.

- b. How many more crows did Jason see than bluebirds? Show or explain how you found your answer.

$$\begin{array}{r} 1,028 \text{ crows} \\ - 987 \text{ bluebirds} \\ \hline 41 \text{ more crows} \end{array}$$

- c. Jason also saw 32 goldfinches each month. How many did he see at the end of four months? Show or explain how you found your answer.

$$\begin{array}{r} 32 \text{ goldfinches} \\ \times 4 \text{ months} \\ \hline 128 \text{ goldfinches} \end{array}$$

- d. Jason drew 21 birds in his notebook. He drew three birds on each page. How many pages did he need for all 21 birds? Show or explain how you found your answer.

$$\begin{array}{r} 21 \text{ birds} \\ \overbrace{\quad\quad\quad}^{3 \text{ birds}} \\ 7 \text{ pages} \end{array}$$

Jason needs 7 pages for 21 birds.

Effective Problem-Solving Strategies

Read problems 2, 3, 4, and 5 on this and the next two pages. Select three problems to answer. Answer ALL of the parts of the three problems you select to answer. Cross out the one problem that you do not choose to answer.

- 2.**
- a. Using a ruler, construct (draw) a quadrilateral that is **2 inches** wide and **3 inches** long. Measure carefully.
 - b. Using a ruler, construct (draw) a quadrilateral that is **3 centimeters** wide and **6 centimeters** long. Measure carefully.
 - c. Construct (draw) your own geometric shape. **Label** the measurements of each side.
 - d. What kind of geometric shape did you draw in part c?

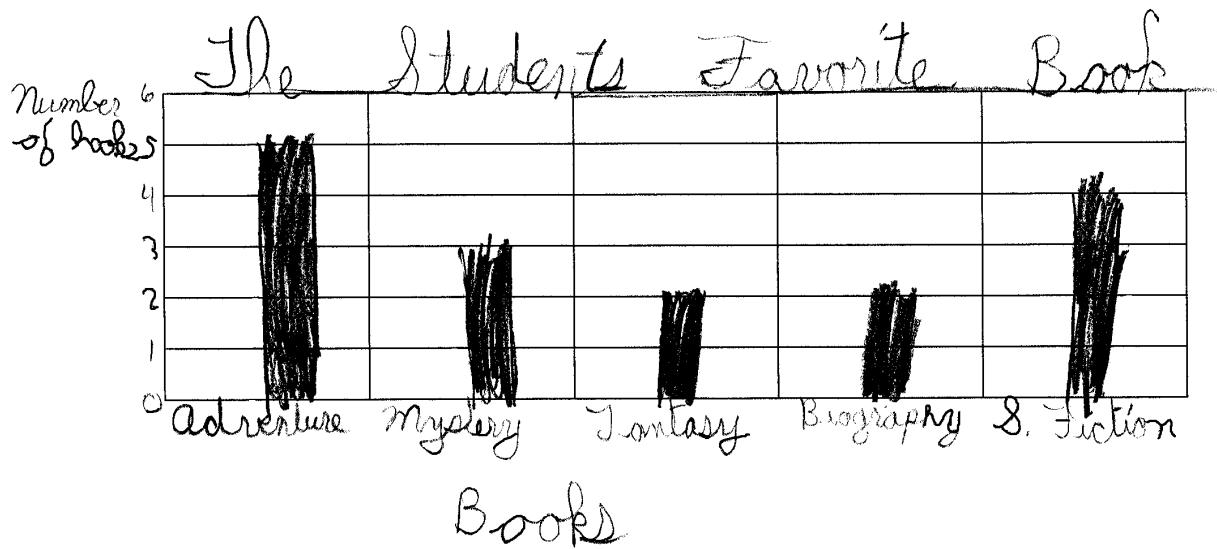
3. The students in Mrs. Taylor's class took a poll of their favorite types of books. The results are listed below.

Student	Type of Book	Student	Type of Book
Austin	Adventure ✕	Jason	Biography ✕
Logan	Mystery ✕	Calli	Biography ✕
Caitlyn	Adventure ✕	Seth	Science Fiction ✕
Brandon	Mystery ✕	Jade	Adventure ✕
Jose	Adventure ✕	Sean	Science Fiction ✕
Nicole	Fantasy ✕	Cielito	Science Fiction ✕
Paris	Fantasy ✕	Kortney	Science Fiction ✕
Nico	Mystery ✕	Payton	Adventure

- a. Use tally marks to show how many students choose each type of book.

Adventure Mystery Fantasy Biography S. Fiction
 ||| |||| || ||| |||||
 (1) (2) (1) (2) (1)

- b. Use the class information to make a graph. **Label** the graph.



- c. Study the graph. Write **two facts** you learned from the graph.

1. I learned that most of Mrs. Taylor's class likes Adventure books.
2. The graph told me that only 4 people in Mrs. Taylor's class like Science Fiction books.

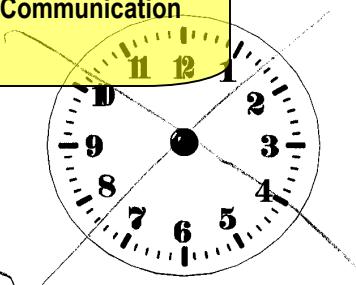
**Advanced Mathematical Vocabulary,
Use of Symbols and Communication
Skills**

- 4.** Sam reads 20 minutes each day.

- a. How much time does he read in one week?
Show or explain how you found your answer.

$$\begin{array}{r} 20 \text{ min.} \\ \times 7 \text{ days} \\ \hline 140 \text{ min.} \end{array}$$

$$\begin{array}{l} 7 \text{ days} = 1 \text{ week} \\ 60 \text{ min} = 1 \text{ hour} \end{array}$$



Sam reads for 2 hours and 20 min. in a week.

- b. Sam goes to bed at 8:45 PM. If he wants to read 20 minutes before going to bed, what time must he start reading? Show or explain how you found your answer.

$$\begin{array}{r} 8:45 \text{ PM} \\ - 20 \text{ min.} \\ \hline 8:25 \text{ PM} \end{array}$$

Sam needs to start at 8:25 PM if he wants to read for 20 min. before bed.

- c. The next morning Sam finishes breakfast at 7:50 AM. If he starts reading at 7:50 AM, what time will he finish his reading for the day? Show or explain how you found your answer.

$$\begin{array}{r} 7:50 \text{ AM.} \\ + 20 \text{ min.} \\ \hline 7:70 \text{ AM.} \end{array}$$

$$60 \text{ min.} = 1 \text{ hr.}$$

$$\rightarrow 8:10 \text{ AM.}$$

Sam will get done reading at 8:10 AM.

- 5.** There are three numbers in Chrissy's bicycle lock combination. They are 2, 7, and 9. Unfortunately, Chrissy cannot remember the correct order of the three numbers.

- a. List all possible ways the numbers could be ordered for Chrissy's lock.

Ⓐ 2,7,9 Ⓑ 2,9,7 Ⓒ 7,2,9 Ⓓ 7,9,2 Ⓔ 9,7,2 Ⓕ 9,2,7

6 ways

Advanced Understanding of Situations

- b. It takes Chrissy **30 seconds** to try each different order. If she has to try them all, how long will it take for her to open her lock? Show or explain how you found your answer.

60 sec. / min.

30 sec.
30 sec.
30 sec.
30 sec.
90 sec.
180 sec.

180 sec. 3 min.

Chrissy will spend 3 min.

180 sec trying to open her lock.

24 ways

- Nick's lock combination has four numbers: 2, 7, 9, and 5. How many possible ways might these numbers be ordered? Show or explain how you found your answer.

24 ways

- Ⓐ 9,8,7,2
Ⓑ 9,5,2,7
Ⓒ 9,2,5,7
Ⓓ 9,2,7,5

Ways	2,5,7,9	2,5,9,7	2,7,5,9	2,7,9,5	2,9,5,7	2,9,7,5	5,2,7,9	5,2,9,7	5,7,9,2	5,7,2,9
number of ways	1	2	3	4	5	6	7	8	9	10
Ways	8,9,2,7	5,9,2,7	7,9,5,2	7,9,2,5	7,5,9,2	7,5,2,9	7,2,9,5	7,2,5,9	9,7,5,2	9,7,2,5
number of ways	11	12	13	14	15	16	17	18	19	20

24 ways